

### Ammy Nurwati

Department of Public Policy and Management, Faculty of Social and Political Sciences, Universitas Gadjah Mada  
Email: aminurwati@yahoo.com

### Bevaola Kusumasari

Department of Public Policy and Management, Faculty of Social and Political Sciences, Universitas Gadjah Mada  
Email: bevaola@ugm.ac.id

### Agus Pramusinto

Department of Public Policy and Management, Faculty of Social and Political Sciences, Universitas Gadjah Mada  
Email: guspram2001@yahoo.com

### Ahmad Maryudi

Department of Public Policy and Management, Faculty of Social and Political Sciences, Universitas Gadjah Mada  
Email: maryudi76@yahoo.com

### Ammy Nurwati

worked as Head of the West Java Natural Resource Conservation since 2019-present, born in Jepara, Indonesia August 8th 1969. Graduated from Faculty of Forestry, Universitas Gadjah Mada in 1993. Her Master of Human Resource Management is obtained from the Bogor Agricultural Institute in 2010. Since 1994 he worked at the Ministry of Forestry (then) in the Direktorat General of Forest Exploitation and worked in the Direktorat General of Natural Resource Conservation from 2009 to the present. The field of conservation which is the main task of its functions includes the protection, preservation and utilization of resources both biodiversity and the integrity of conservation areas.

### Bevaola Kusumasari

earned her Ph.D. at Monash University, Australia and currently active as a lecturer in the Department of Public Policy and Management, Faculty of Social and Political Sciences, Universitas Gadjah Mada, Indonesia. She has a broad variety of interest in disaster management, public management, and public policy. Several of her articles published in Scopus indexed journals. Her Scopus ID is 364600645 00 with h-index 4.

Policy & Governance Review  
ISSN 2580-4820

Vol. 4, Issue 1, pp. 55-67  
DOI: <https://doi.org/10.30589/pgr.v4i1.279>

## Principal-Agent Relation in Conserving the Kali Putih Area in the Reconstruction and Mitigation Zone of Merapi Mountain National Park

### Abstract

This article aims to observe the dynamics of policy implementation involving various stakeholders in the effort of conserving one of the National Parks in Indonesia, particularly Merapi Mountain National Park (*Taman Nasional Gunung Merapi* – TNGM). Following the Zoning Policy implemented in the TNGM area, there is a zone that should have been protected from mining activities, namely the reconstruction and mitigation zone. However, in its implementation, the conservation collaboration agreement of one of the areas in the zone, namely the Kali Putih Area, is instead used by some parties to engage in sand mining activities. The principal-agent theory is, thus, employed in this study to examine the extent of the relationship of every party in the zoning policy implementation process of an area designated as a Reconstruction and Mitigation Zone. The qualitative approach is used to gain direct insights pertaining to the implementation of efforts conducted by several relevant parties in conserving the Kali Putih Area in TNGM's Reconstruction and Mitigation Zone. Study results ultimately show that moral hazard in the principal-agent theory should not only be understood as deviant behaviors enacted by the agent, but the moral hazard performed by the agent may also influence the principal's decision making process. This research is expected to provide an outlook to the government, which functions as the principal in a policy, to make several considerations prior to entering into any collaborative agreement or making any decision, so that the implementation process of policies can align with what has been previously planned.

### Keywords:

national park; collaboration agreement; moral hazard; policy implementation; decision making

**Agus Pramusinto**

is a Professor in the field of Public Administration. He is currently serves as Head of the Department of Public Policy and Management, Faculty of Social and Political Sciences, Universitas Gadjah Mada. He obtained his Doctorate in Policy and Governance, from the Asia Pacific School of Economics and Government/APSEG, Australian National University, Canberra in 2005. He currently dedicates his experience and knowledge to teach in the Department of Public Policy and Management, Faculty of Social Sciences and Political Science, Universitas Gadjah Mada. Agus Pramusinto has research and writing interests in the areas of Local Government and Decentralization, Administrative Reform, Disaster Management, and Development of Training for Government Planners.

**Ahmad Maryudi**

earned his Ph.D at Gottingen University in 2011 for the forestry development policy and currently active as a lecturer in the Departement of Forest Management, Forestry Faculty, Gadjah Mada University, in 2017 as Professor of forestry policy, till present he has research and writing in interest in terms of Forest Governance, Forest Policy, International Forest Regime, Land Use Policy and obtained BPP Award - Best Publication, Gadjah Mada University, 2017.

**Introduction**

The complexity of issues confronted by the government is no longer manageable by the government alone, as it ultimately requires collaboration with various existing components to satisfy public affairs by eliminating sectoral and organizational restrictions (Getha-Taylor, 2007). In the case of public policy, for instance, the government as the decision maker often involves various non-governmental parties to deal with public policy implementation and formulation processes (Bergman & Lane, 1990; Coats, 2002; Zubayr, Darusman, Nugroho, & Nurrochmat, 2014). The principal-agent approach is eventually employed in public policy studies to avoid any issues in both policy implementation and formulation processes involving various other parties or delegations (Braun & Guston, 2003).

The policy pertaining to the conservation of the Merapi Mountain National Park (*Taman Nasional Gunung Merapi* – TNGM) area is one of the examples of a policy that continually involves various parties throughout both its implementation and formulation processes (Daru & Hudayana, 2015) The abundance of sand material in the TNGM area presents potential interests from various parties, hence requiring due considerations and thorough attention by the government in making a policy regulating the area's conservation in order to avoid any potential conflict and illegal mining (Santoso & Wibawa, 2015; Daru & Hudayana, 2015). The Decree of the Director General of Natural Resources and Ecosystem Conservation (*Konservasi Sumber Daya Alam dan Ekosistem* – KSDAE) number SK.37/KSDAE/SET/KSDAE.0/2/2016 was eventually made through a deliberative process in its formulation stage in order to accommodate the needs of all relevant stakeholders. The Decree introduced the zoning system in the TNGM area, which is distributed into six zones, with one of the zones being the focus of this study, namely the reconstruction and mitigation zone. In accordance with the Decree of the Director General of KSDAE of the Ministry of Environment and Forestry (*Kementerian Lingkungan Hidup dan Kehutanan* – KLHK), the Reconstruction and Mitigation Zone is considered as a protected area and that any mining activity is prohibited in the area.

In the reconstruction and mitigation zone there is a block called Jurang Jero in the Kali Putih area which is a lahar pathway abundant in sand and rock materials from prior eruptions. The output of the deliberations when drafting the TNGM zoning policy agreed that all activities pertaining to extracting and dredging sand in the area are prohibited, the area should, therefore, be free of any mining activities. However, in its implementation, mining activities have in fact been occurring in the Kali Putih area. Since 2015, before the TNGM zoning policy, manual sand mining operations have been carried out by 1122

locals who consider themselves to be under the Green Merapi Community (*Paguyuban Merapi Hijau* – PMH) group. PMH's mining activities have continued from 2015 up to 2018 without any legal regulation in place. Eventually, sand mining by PMH in the Kali Putih area remained allowed by the TNGM Office (*Balai TNGM* – BTNGM) due to considerations that the surrounding community relies on the sand material available in the area, and that the damages inflicted by their mining activities remain minimal as it merely utilizes manual tools (hoes, scoopers, shovels).

Based upon those considerations, BTNGM had subsequently made arrangements as a strategy to collaborate with PMH, so that the activities carried out by the community may still continue in the Kali Putih area. A real problem in the implementation of the TNGM zoning policy in the reconstruction and mitigation zone emerged on the 13<sup>th</sup> of September, 2017 when Surya Karya Setiabudi (SKS) Ltd. came into the area with a letter of notice informing BTNGM that the company will begin conducting mining activities in the Kali Putih area. The recommendation letter for the technical conservation of the Kali Putih flow has been given to SKS Ltd. by the Serayu Opak River Basin Primary Office (*Balai Besar Wilayah Sungai Serayu Opak* – BBWSSO) as the representative of the Ministry of Energy and Mineral Resources (*Kementerian Energi dan Sumber Daya Mineral* – KESDM), and as a result, SKS Ltd. considered that they have the license to conduct mining activities in the Kali Putih area. While according to BTNGM, the study that BBWSSO has in relation to the recommendation given for conserving the Kali Putih area is not in line with their purview or capacity. Eventually, the presence of SKS Ltd. has in fact triggered various conflicts involving PMH and SKS Ltd.

In response to the various problems in the implementation process of the TNGM Zoning Policy in the Reconstruction and Mitigation Zone, KLHK finally issued a collaboration agreement for

the conservation of the Kali Putih area with SKS Ltd. via a decree made by the Director General of KSDAE. The content of the collaboration agreement refers to the authority given to SKS Ltd. by the Director General of KSDAE to conserve the Kali Putih area, with the consideration of previous mining activities conducted by SKS Ltd. and the recommendation letter for conservation of the Kali Putih area given by BBWSSO. In April 2018, KLHK also issued a collaboration agreement with the Green Merapi Community (PMH) via the Head of BTNGM, which is actually made on account of the conflict that occurred between PMH and SKS Ltd. Ultimately, the zoning policy implementation process in the reconstruction and mitigation zone presents two parties, namely PMH and SKS Ltd., as the agents of the government (of which in this case are KLHK and KESDM) in conducting conservation measures in the Kali Putih area.

This study intends to examine the extent of SKS Ltd. and PMH's role as agents in implementing TNGM zoning policy in the reconstruction and mitigation area, particularly in terms of conserving the Kali Putih area. The collaboration agreements made by KLHK and KESDM show that these two ministries function as the principal in this study. The study will also examine the extent of the relations between all the parties involved in the implementation of the zoning policy in the reconstruction and mitigation zone, as well as observe how the activities carried out by each of the agent in the study aligned with the need to conserving the area. Accordingly, the use of the principal-agent theory is considered as most appropriate in this study to observe and analyze the extent of the relationships between all the parties and the interests that each of the agent has. The principal-agent theory is also believed to be feasible for finding potential information asymmetry between the principal and the agent, which may cause the duties carried out by the agent to become unaligned with the policy objectives (Zubayr, Darusman, Nugroho, &

Nurrochmat, 2014), and accordingly this study also aims to examine whether possibility of information asymmetry is also present in the Kali Putih area conservation case.

## **Literature Review**

### **Principal-Agent Theory in Policy Implementation**

Chatagny & Soguel (2007) explain that the principal-agent model was initially used in economic studies to measure the extent of requirement in distribution of tasks and profit given by one party (principal) to another (agent). The objective of this theory is to avoid information asymmetry since the agent has other purposes that may not be observable or known by the principal, and this may result in the agent performing tasks that are not in line with the needs of the principal (Mas-Colell, Whinston, & Green, 1995; Laffont & Martimort, 2002). In its development, the principal-agent model eventually becomes a theory that is frequently used in public policy studies, and it is utilized to examine the formulation or implementation process of a policy (Bergman & Lane, 1990; Coats, 2002; Chatagny & Soguel, 2007; Lane, 2013; Zubayr, Darusman, Nugroho, & Nurrochmat, 2014). The principal-agent theory in public policy studies is considered most appropriate to examine policy formulation and implementation processes involving a number of actors, be it from the government side or other parties (Lane, 2013).

Factually speaking, applying the principal-agent theory in the public sector is indeed very likely since the public sector has various delegations in the process of decision-making and fulfilling public needs (Coats, 2002; Braun & Guston, 2003). In general, the principal-agent model is used in the public sector to examine the relationship between the government and the administrator, or the relationship between levels of government/administrator (Chatagny

& Soguel, 2007). The principal-agent model can also be applied in the chain of delegation which involves the relationship of various actors in policy implementation, starting from the community, the government, and even the private sector (Braun & Guston, 2003; Imbeau, 2003). In other words, the principal-agent model does not only examine the relationship between two actors, it can also involve various actors as either principals or agents (Imbeau, 2003; Zubayr, Darusman, Nugroho, & Nurrochmat, 2014). In the public policy sector at the regional level, the principal-agent model can also be used to examine the relationship between the regional community as the principal and the local government as the agent (Chatagny & Soguel, 2007). Therefore, the principal-agent model in public policy may accordingly be employed to examine the relationship of various actors given that the issues pertain to public needs.

Essentially, the principal-agent model used in public policy approach does not have any significant differences with economic studies, wherein the model is employed to examine the information asymmetry occurring among several actors (as principal and agent) in a policy (Lane, 2013). Information asymmetry occurs when the agent has better information than the principal does, or the agent has objectives that are unknown by the principal so that in the policy implementation the agent will pursue any means to achieve their objective without the principal having any knowledge or capacity over the matter (Gracia, Rodriguez-sánchez, & Fdez-Valdivia, 2015). Hence, according to Lane (2013), the principal should avoid the following two things to remove information asymmetry, namely moral hazard and adverse selection. In the policy sector, the government as the decision maker should identify potential moral hazards and avoid adverse selection of every delegation tasked (Lane, 2013; Zubayr, Darusman, Nugroho, & Nurrochmat, 2014).

## **Moral Hazard and Adverse Selection**

Moral hazard is defined as opportunistic behaviors conducted by one of the actors to achieve an individual/group objective that is not within the interest of a predetermined collaboration contract or policy (Zubayr, Darusman, Nugroho, & Nurrochmat, 2014). In the agency relationship, both parties (principal and agent) should struggle to maximize their utility under mutually beneficial principles. However, the fact that one of the parties has better information than the other will result in a potential moral hazard emerging from one of them (Lane, 2013). Zubayr, Darusman, Nugroho, & Nurrochmat (2014) also explain that opportunistic behaviors are conducted by agents to achieve their objectives by reducing existing risks and transactional expenses during the policy implementation process. Given that the agents have more information (asymmetry of information), they are able to determine other objectives not stipulated in the policy that may be advantageous to them, and as a result, the agents will pursue any means to achieve said objectives (Zubayr, Darusman, Nugroho, & Nurrochmat, 2014). In reality, such opportunistic behaviors occur due to the lack of the principal's capacity in controlling information and overseeing their agents, so the agents have the information, capacity, and experience to achieve interests beyond the policy determined by the principal instead (Lane, 2013; Zubayr, Darusman, Nugroho, & Nurrochmat, 2014). Hence, it is important to understand the potential of opportunistic behaviors (moral hazards) from the various actors involved in the policy implementation process in order to avoid any other interests that are not included in the policy (Lane, 2013).

Aside from moral hazard, the possibility of adverse selection is also another issue that should be avoided in the principal-agent model. Adverse selection is defined as the principal's error in selecting the agent (Lane, 2013). The error occurs when the principal has no capacity

to identify the agent's expertise, or the principal fails to thoroughly verify the agent's capacity prior to making any decision (Zubayr, Darusman, Nugroho, & Nurrochmat, 2014). The principal's error in selecting the agent ultimately impacts the policy implementation process in achieving the preplanned objectives because the selected agents have no capacity or they have other agendas that disrupt the policy implementation process itself (Lane, 2013). Ultimately, the agent selection process conducted by the principal is the most important part in the policy implementation process because it will determine how the policy implementation process will operate in the future.

## **Multiple Principal-Agent**

The issue in implementing the principal-agent model in public policy is the large amount of delegations in both the policy formulation and policy implementation processes, resulting in multiple actors playing the role as principal or agent (Imbeau, 2003). The presence of several principals and agents increases the potential for greater information asymmetry. This is on account of the fact that several principals are present with differing and unaligned objectives and interests, which leads to a decision making process that is at times not necessarily in accordance with the public's needs, and provides opportunities for other considerably beneficial group interests instead (Zubayr, Darusman, Nugroho, & Nurrochmat, 2014). Accordingly, Zubayr et al. (2014) state that the concept of principal-agent can be used to analyze public policy commitment in both formulation and implementation processes.

The principal-agent model is considered feasible to explain the key issues in interactions between principals and agents within the policy formulation and implementation processes that relate to performance and service provision (Zubayr, Darusman, Nugroho, & Nurrochmat, 2014). In addition to paying close attention

to the moral hazard and adverse selection aspects, Zubayr et al. (2014) also supplemented components of inter-principal relationship (P-P problems) and inter-agent relationship (A-A problems) within the principal-agent framework for public policy studies. Previous studies indicate that problems of inter-principal relationship may occur due to incompatible objectives that respective principals have (Su, Xu, & Phan, 2008). As an example from prior research is the case of forest area utilization policy implementation, where the delegation of authority lies in the Ministry of Environment and Forestry and the Ministry of Energy and Mineral Resources, and they sometimes disagree in selecting the agents that manage the forest areas (Zubayr, Darusman, Nugroho, & Nurrochmat, 2014). Different opinions among the principals in selecting agents may cause problems in both policy formulation and policy implementation processes because the selected agents will most likely represent the interests of one of the principals, which ultimately make it more difficult to achieve the main objective of the policy (Su, Xu, & Phan, 2008; Jiang & Peng, 2010).

The presence of more than one principal in the principal-agent model in public policy (known as multiple principal) must be identified, particularly in terms of their interests and objectives, so that the appointment of tasks to the agents is in line with the policy requirement (Zubayr, Darusman, Nugroho, & Nurrochmat, 2014). Zubayr, Darusman, Nugroho, & Nurrochmat (2014) also elaborate that every principal should resolve any internal issues occurring among them and then collectively determine agent(s) that are appropriate with the predetermined policy requirement. Nonetheless, some cases indicate that the collective objective of multiple principals are usually difficult to accomplish due to the lack of coordination among the principals (Su, Xu, & Phan, 2008; Zubayr, Darusman, Nugroho, & Nurrochmat, 2014).

Zubayr Darusman, Nugroho, & Nurrochmat (2014) also emphasize that coordination should

also be administered on the agents, if there are more than one agent tasked in a collaboration agreement or policy. Coordination among agents for the distribution of tasks and profit is considered substantial in order for the implementation process to be properly aligned with the main objective of the policy previously established by the principal(s) (Lane, 2013). Problems often occur as a result of one agent disagreeing with an activity carried out by another agent, although the activity has been approved by the principal (Zubayr, Darusman, Nugroho, & Nurrochmat, 2014). Such problems may undoubtedly hamper the implementation process of a policy, and accordingly the role of each actor in the principal-agent model used in public policy studies should be based on solid coordination.

As described in the previous passage, the implementation of the principal-agent model in public policy requires good coordination among the actors. Good coordination should not only be achieved in the relationship between the principal and the agent, but in inter-principal and inter-agent relations as well. The implementation of the principal-agent model in policy studies should also anticipate the presence of moral hazards and adverse selection of groups with a stake in the policy (both principal and agent), so that the policy's main objective can be optimally achieved without any particular group interest included in the program (Zubayr, Darusman, Nugroho, & Nurrochmat, 2014).

## Methods

The study employed the descriptive qualitative method in collecting data, and it presents a detailed and thorough description of an issue or context of a situation (Neuman, 2014). By using the qualitative method, a research is considered capable of carrying out in-depth and detailed exploration of behavioral phenomenon (Patton, 2002). To provide further detail, a case study approach was used to emphasize

the exploratory process of a limited system in one case or several cases (Creswell, 2007). The case study approached was used to investigate a social condition, situation, or certain event, so that it may provide greater insight describing the process of how such an event or situation unfolds (Yin, 2011). Case study is considered to be advantageous in showcasing essential things that are subject to the social process of the community in a concrete event, based on the experience of the stakeholders (Hodgetts & Stolte, 2012).

Ultimately, this article aims to gain a deeper understanding of TNGM's zoning policy implementation process, particularly in the case of conserving the reconstruction and mitigation zone in the Kali Putih area. This study will show how the delegations that are involved in the process of conserving the Kali Putih area carried out their duties according to the previously established mandate of the TNGM Zoning Policy (in accordance with the Decree of the Director General of KSDAE). The Reconstruction and Mitigation Zone in the Kali Putih Area was selected based on the presence of a number of delegations (namely SKS Ltd. and PMH) in the conservation process, as well as the sand material deposit in the area which caused potential conflicts to occur among all the relevant parties.

There are six sources in the data collection, namely: documents, recordings, interviews, direct observation, archives, participant observation, and physical artifacts (Yin, 2011). In the study, the data collection stage consisted of conducting interviews with key informants who have direct experience and thorough knowledge of the TNGM zoning policy implementation issue in the reconstruction and mitigation zone of the Kali Putih Area, as well as gathering documents relevant to the study matter. The entire data were collected based on direct on-site observation and by using the participant observation approach. Participant observation is used in studies that involve the researcher directly throughout every

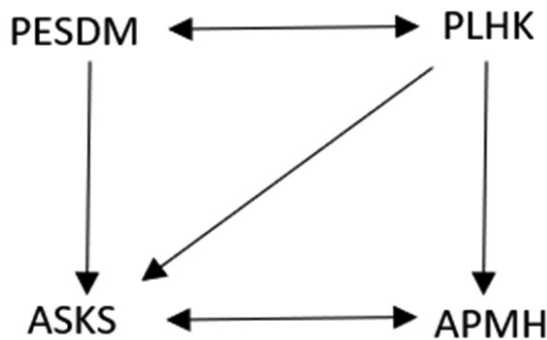
process, requiring the researcher to experience the existing conditions on the field, and be involved in the daily events of the study objects (Sugiyono, 2008). The researcher, as one of the parties involved in the TNGM Zoning policy implementation process, was ultimately able to obtain information from various other parties involved, as well as information about the daily issues occurring in the policy implementation process in TNGM's reconstruction and mitigation zone in the Kali Putih Area.

## **Results and Discussions**

### ***Principal-Agent Relation in the Reconstruction and Mitigation Zone***

Based on the previous explanation, the application of the principal-agent model in policy implementation process can be observed through a chain of delegation involving several parties from varying circles (Braun & Guston, 2003; Imbeau, 2003). In the case of TNGM zoning policy implementation in the reconstruction and mitigation zone, the chain of delegation can be observed as a letter of collaboration agreement was given by KLHK to SKS Ltd. and PMH. Both SKS Ltd. and PMH function as agents in implementing TNGM's zoning policy to conduct conservation in the Kali Putih Area. What sets the two apart is that SKS Ltd. had come to play its role through a recommendation provided by BBWSSO as the government representative in charge of affairs relating to Energy and Mineral Resources (*Energi dan Sumber Daya Mineral – ESDM*). Accordingly, in addition to having two agents in the implementation of TNGM zoning policy in the reconstruction and mitigation zone, there are also two principals involved, namely the government in the ESDM sector that provided SKS Ltd. the recommendation letter for conserving the Kali Putih Area, and the government in the Environment and Forestry (*Lingkungan Hidup dan Kehutanan – LHK*) sector that maintains authority in affairs relating to TNGM's zoning system.

**Figure 1.**  
**Principal-agent relation in the**  
**implementation of TNGM Zoning Policy**



*Source: Zubayr, Darusman, Nugroho, & Nurrochmat, 2014.*

In line with the structure of the principal-agent relation in the implementation of TNGM zoning policy above, SKS Ltd. (ASKS) plays the role of the agent given the authority to conserve the Kali Putih Area by BBWSSO as the principal in the field of ESDM (PESDM), and KLHK as the principal in the field of LHK (PLHK). Meanwhile, PMH (APMH) plays the role of the agent with responsibility given by PLHK to carry out strengthening function in the TNGM Area through community empowerment collaborations. Based on the previous explanation, policy implementation in the principal-agent model can be considered successful when there is good coordination among all the parties involved, and that there is no information asymmetry between principals and agents (Lane, 2013). Whereas in the TNGM zoning policy implementation case, there were various problems generated from the lack of coordination that constantly occurred, eventually resulting in conflict among all the parties.

Zubayr, Darusman, Nugroho, & Nurrochmat (2014) state that policy implementation involving more than one principal will increase the potential for information asymmetry instead since each principal usually has its own respective objectives and interests. In reality, this is what happened in the TNGM zoning policy implementation case, wherein initially PESDM and PLHK have different

objective and interest in the reconstruction and mitigation zone, particularly in the Kali Putih Area. The start of sand mining activities conducted by ASKS in the Kali Putih Area was prompted by PESDM's recommendation letter to conduct such mining activities. While according to the deliberative policy that has been drafted and enacted by PLHK in prior, the Kali Putih Area is actually included in the reconstruction and mitigation zone, which is prohibited for conducting any mining activities.

According to the testimony of one of the informants, the recommendation was given by PESDM because ASKS had submitted a request to conduct mining activity in another area and it had been approved by PESDM with incentive given to a certain individual working in PESDM. ASKS also proposed for a new area replacement to PESDM so that they could carry out their mining activity. Subsequently, ASKS was selected for conducting mining activities in the Kali Putih Area and this is approved by PESDM, wherein a recommendation letter for the conservation of the Kali Putih Area was then given by PESDM to ASKS.

Information asymmetry clearly occurred when ASKS unexpectedly submitted a letter of work commencement to PLHK and began their mining activities in the Kali Putih Area. PLHK had no prior knowledge of the recommendation given by PESDM to ASKS to carry out conservation of the Kali Putih Area in the reconstruction and mitigation zone. Poor coordination between the principals (PLHK and PESDM) in the zoning policy implementation case can also be observed from the different opinions that the two principals have relating to the urgency of the Kali Putih Area conservation by ASKS. As stated by Zubayr, Darusman, Nugroho, & Nurrochmat (2014), poor coordination among the principals (known as P-P problems) will instead provide other opportunities outside of the policy interest to intervene in the policy implementation process. In reality, the presence of ASKS in the implementation



of TNGM zoning policy is an example of external interests intervening in a predetermined policy requirement. ASKS appeared with interests of conducting mining activities in the Kali Putih Area, which should be prohibited if it had referred to the decision made in the previous policy deliberation.

### ***Moral Hazard and Adverse Selection in the Conservation of the Kali Putih Area***

According to prior studies, the occurrence of information asymmetry in a principal-agent relationship directly correlates with potential incidence of moral hazard and adverse selection (Lane, 2013; Zubayr, Darusman, Nugroho, & Nurrochmat, 2014). Moral hazard is defined as opportunistic behaviors to achieve a group's objective that is outside of the collaboration contract or policy interest, whereas adverse selection is error made by the principal in identifying the selected agent's ability and capacity (Lane, 2013). As described in the previous passages, the advent of moral hazard in ASKS has been apparent since the start of the mining activity intervention in the reconstruction and mitigation zone in mid September of 2017, which according to TNGM zoning policy should be prohibited. The Kali Putih conservation recommendation given by PESDM to ASKS is considered by several parties as a means to facilitate the mining activities of ASKS in the area for the sake of gaining company profit.

This assumption is reinforced with other opportunistic behaviors shown by ASKS once they have secured a collaboration agreement with PLHK, which is bringing in heavy machineries to the Kali Putih Area. According to Law No. 18/2003 and Presidential Regulation No. 70/2014, heavy machineries are prohibited from being brought into National Park Areas, and it is considered as a criminal act when such actions are committed. While in fact, ASKS has brought in heavy machineries into the Kali Putih Area which is a part of the Merapi Mountain National Park Area. The fact that Kali Putih is included in

the reconstruction and mitigation zone, which according to the issued TNGM zoning policy should not be allowed for any mining activities, makes it even more unsettling.

Aside from bringing heavy machineries, another moral hazard that ASKS committed was prohibiting the surrounding community (APMH) to carry out sand extraction activities in the Kali Putih area. While in the collaboration agreement made between ASKS and PLHK, it is stipulated that ASKS must coordinate with APMH to determine the area distribution in the conservation of the Kali Putih Area. Yet in its implementation, ASKS did not allow APMH to engage in sand extraction activities in the Kali Putih Area instead. While factually speaking, prior to the collaboration agreement between PLHK and ASKS, APMH has been conducting sand extraction activities in the area since 2015. The lack of coordination between ASKS and APMH in their efforts of preserving the Kali Putih Area may be classified as an A-A problem, which according to Zubayr, Darusman, Nugroho, & Nurrochmat (2014) is a problem that occurs in the policy implementation process and it includes coordination issues among the agents.

In the collaboration agreement letter agreed upon by high ranking officials of PLHK and ASKS, it is stated that ASKS should engage in relationship with the community in the TNGM Area (which is also a part of APMH) in order to have a similar point of view regarding the arrangement of work areas. Additionally, high ranking officials of ASKS are also obligated to implement their agreement with APMH, which has been agreed upon by officials of ASKS and the chairperson of APMH in order to conserve the Kali Putih Area. Nonetheless, in its implementation, ASKS prohibited APMH to extract sand in some areas of Kali Putih. While in fact, the area claimed by ASKS used to be the area that was commonly used by APMH to conduct their sand extraction activities.

At the time, APMH had not entered into a collaboration agreement with PLHK, while

ASKS has secured a collaboration agreement and maintains authority over the management of these areas. However, one of the divisions of PLHK, namely the Office of TNGM, allowed the activities conducted by APMH since they are carried out through traditional means and do not destroy the TNGM Area. In fact, the activities conducted by APMH is believed by one of the informants as APMH's efforts to participate in maintaining the preservation of TNGM and to provide assistance in the successful implementation of the previously agreed upon TNGM zoning policy.

Following the A-A problem between ASKS and APMH, the existing conflict between the two parties eventually became even more heated. ASKS was also considered to have violated the provisions previously stipulated in the collaboration agreement with PLHK. Ultimately, in order to dampen the inter-agent conflict, PLHK via one of its divisions (the Office of TNGM) entered into a collaboration agreement with APMH in the month of April 2017 so that it could take part in conserving the TNGM Area, particularly in the Kali Putih Area. This collaboration agreement indicates the support PLHK provides to APMH to contribute in managing the TNGM Area by empowering the surrounding community, monitoring area conservation, and tourism development.

The research findings have also proven that in reality the moral hazard perpetrated by the agent not only intervened in the policy implementation process (such as the mining activities carried out by ASKS), but it also influenced the decision making process of the principal. According to the collected data it has been explained that the initial intervention ASKS committed was supported by PESDM through the recommendation letter. In line with the testimony of one of the informants, the decision made by PESDM to issue the recommendation letter was instigated by the incentive given by ASKS to one of the personnel at PESDM. Giving such incentive to a government employee is a form of moral hazard

committed by ASKS to facilitate their interest in conducting mining activities in an area they desire.

Actually, the moral hazard committed by the agent to influence the principal's decision making process did not only happen in the relationship between PESDM and ASKS, but it also happened in the case of the collaboration agreement settled between PLHK and ASKS. According to a testimony from one of the informants, the decision making process that PLHK undertook (to make a collaboration contract with ASKS) was marked with threats made by ASKS. ASKS threatened one of PLHK's employee to immediately agree with the collaboration agreement made between the two parties. ASKS used the name of a political figure as a way to intervene in the decision made by one of PLHK's personnel. If the person were to disagree with the collaboration agreement for the conservation of the Kali Putih Area, ASKS threatened to report the PLHK official to one of the political figures so that he/she would be demoted from his/her position. Following the intervention, the collaboration agreement between ASKS and PLHK was eventually issued in the month of February of 2017.

The acquired data findings have reinforced a new hypothesis that moral hazard is not only able to intervene in the policy implementation process as observed in previous studies (Lane, 2013; Zubayr, Darusman, Nugroho, & Nurrochmat, 2014), moral hazard committed by agents can also influence the principal's decision making process. The recommendation letter and collaboration letter made with PESDM and PLHK respectively were approved on account of the moral hazard committed by ASKS. Accordingly, in the principal-agent model applied to policy studies, the moral hazards that agents perpetrate should be anticipated in the principal's decision making process. Once agents are able to include their interests in the principal's decision making process (through interventions/moral hazards), then it will be easier for them to achieve certain

interests that are not included in the requirement of a policy implementation.

This hypothesis can be proven by observing ASKS' behavior once they have succeeded in intervening in PLHK and PESDM's decision making process, wherein after the collaboration agreements had been settled, ASKS could commit other moral hazard potentials without reserve (such as using heavy machineries and prohibiting APMH's activities). In addition to moral hazard, adverse selection was also an issue in the case of zoning policy implementation in the reconstruction and mitigation zone. Adverse selection in the principal-agent model is defined as the principal's error in selecting an agent (Lane, 2013). Such error may occur when the principal does not have the capacity to identify the expertise of the agent, or the principal fails to verify the agent's entire capacity before making a decision (Zubayr, Darusman, Nugroho, & Nurrochmat, 2014).

Adverse selection in the case of TNGM zoning policy implementation in the reconstruction and mitigation zone can be observed through the various problems that emerged once ASKS played its part as an agent. ASKS was adversely selected based on the collaboration agreement settled between ASKS and PLHK without any in-depth review of the capacity and capability that ASKS has. As previously explained, the collaboration agreement was the result of an intervention made by ASKS to one of PLHK's officials. The official was terrified as ASKS admitted to having close relationship with one of the political figures in Indonesia, and ultimately the collaboration agreement was accepted by PLHK. While in fact, according to a testimony made by one of the informants, there was no reaction whatsoever from the political figure whose name was used as a "tool" by ASKS even after the collaboration agreement between ASKS and PLHK was retracted.

As one of the informants admitted, in reality ASKS did not have solid relationship with one of the political figures whose name

was mentioned to the PLHK official. Adverse selection is apparent in this case in which the PLHK official lacked the capacity as a principal to thoroughly identify and verify the capacity of ASKS as an agent prior to making the decision of entering into a collaboration agreement for the conservation of the Kali Putih Area. And as a result, the collaboration agreement between PLHK and ASKS ultimately caused a rather complicated issue in the implementation of TNGM's zoning policy in the reconstruction and mitigation area. If only from the start the PLHK official had identified and verified the extent of ASKS' relation with the political figure, then the intervention ASKS committed in the Kali Putih Area could have been minimized. The PLHK's official's lack of capacity is one of the examples that had led to an issue of adverse selection, which subsequently generated problems in the policy implementation process, particularly in this case is the implementation of TNGM zoning policy in the reconstruction and mitigation zone.

In addition, PLHK also continued to extend its collaboration agreement with ASKS even after the various problems that have been caused by ASKS, without any measures/sanctions imposed on the agent. When the collaboration agreement between PLHK and ASKS had expired in the month of April 2018, an extension letter of the collaboration agreement had been settled between the two sides. Another case of adverse selection is observed here, wherein the extension is instead accepted by PLHK, while at the same time ASKS had violated several provisions in the collaboration agreement. In terms of the collaboration agreement extension case, PLHK is considered incapable of thoroughly verifying the capacity and capability of ASKS as an agent. With all the violations that ASKS had committed, the collaboration agreement should not have been extended so that the Kali Putih Area in the reconstruction and mitigation zone can remain preserved and protected.

**Table 1.**  
**Principal-Agent Model in the**  
**Implementation of TNGM Zoning Policy**  
**in the Kali Putih Area**

Models	Activity
<b>Information Asymmetry</b>	Initiation of mining activity operation by ASKS in the Kali Putih Area, which is a reconstruction and mitigation zone of TNGM. ASKS has an interest to conduct mining activities for company profit, while PLHK aims to conserve the TNGM area.
<b>Moral Hazard (ASKS)</b>	<ul style="list-style-type: none"> <li>• Heavy machinery activities in the National Park Area</li> <li>• Intervention to APMH's sand extraction activities</li> <li>• Providing incentive to obtain recommendation from PESDM</li> <li>• Intervention by using the name of a political figure to obtain collaboration agreement with PLHK</li> </ul>
<b>Adverse Selection</b>	<ul style="list-style-type: none"> <li>• PLHK's lack of knowledge/ understanding as to the extent of ASKS' relation with the political figure</li> <li>• Extension of the collaboration agreement between PLHK and ASKS</li> </ul>
<b>P-P Problem</b>	Weak coordination between PESDM and PLHK in relation to the maintenance and implementation of TNGM zoning policy
<b>A-A Problem</b>	Lack of willingness from ASKS to engage in collaboration with APMH in order to maintain and manage the Kali Putih Area

*Source: Lane (2013); Zubayr, Darusman, Nugroho, & Nurrochmat (2014).*

## Conclusion

By using the principal-agent model, it is obvious that the implementation of TNGM zoning policy in the reconstruction and mitigation zone still faces several problems. The evident information asymmetry between PLHK and ASKS had undoubtedly influenced the conservation of the Kali Putih Area, which should not be exploited as a site for mining activities in accordance with the TNGM zoning policy. PLHK's weakness as a principal in anticipating moral hazards and adverse selection had direct impact on problems

occurring in the reconstruction and mitigation zone. PLHK as the principal should conduct thorough identification and verification measures on ASKS as the agent prior to making any decisions in the collaboration agreement, without being influenced by any threats posed by the agent.

In addition, the study also found a new hypothesis, which is that moral hazards committed by an agent do not only disrupt the policy implementation process, but moral hazards can also influence the principal's decision making process. The hypothesis can be observed in the behavior of agents like ASKS that are able to intervene in the decision making process of every principal (PLHK and PESDM) in the implementation of TNGM zoning policy. Such moral hazards committed by an agent should, therefore, be anticipated not only to facilitate a smooth policy implementation process, but also to avoid principals from making decisions that are not aligned with the established policy objectives. The presence of multiple principals and multiple agents should also be strengthened through good coordination among all the parties involved. This is imperative in order to avoid any coordination problems, such as the P-P problem and A-A problem that unfolded in the implementation of TNGM zoning policy in the reconstruction and mitigation zone. Weak coordination between PLHK and PESDM, as well as between APMH and ASKS, had resulted in various problems or conflict potentials in the implementation process of TNGM zoning policy in the Kali Putih Area of the reconstruction and mitigation zone.

## References

- Bergman, M., & Lane, J. -E. (1990). Public policy in a principal-agent framework. *Journal of Theoretical Politics*, 2(3), 339-352.
- Braun, D., & Guston, D. H. (2003). Principal-agent theory and research policy: An introduction. *Science and Public Policy*, 30(5), 302-308.

- Chatagny, F., & Soguel, N. (2007). The relevance of the principal-agent model for the analysis of public policies: Do objectives conflict?. *The International Journal of Interdisciplinary*, 2(1): 385-391.
- Chatagny, F., & Soguel, N. (2007). The relevance of the principal-agent model for the analysis of public policies: Do the objectives conflict? *The International Journal of Interdisciplinary Social Sciences*, 2(1), 385-391.
- Coats, J. C. (2002). Applications of principal-agent models to government contracting and accountability decision making. *International Journal of Public Administration*, 25(4), 441-461.
- Creswell, J. W. (2007). *Qualitative inquiry and research design: Choosing among five approaches (2nd ed.)*. USA: Sage Publications, Inc.
- Daru, N. M., & Hudayana, B. (2015). Kajian konflik penambangan pasir di Taman Nasional Gunung Merapi (Jurang Jero Kab. Magelang Provinsi Jawa Tengah) Pasca Erupsi 2010. Retrieved from <http://etd.repository.ugm.ac.id/penelitian/detail/83317>.
- Getha-Taylor, H. (2007). *Collaborative governance: Lessons from Katrina*. Florida: The Bureacrat Inc.
- Gracia, J. A., Rodriguez-sánchez, R., & Fdez-Valdivia, J. (2015). The principal-agent problem in peer review. *Journal of Association for Information Science and Technology*, 66(2), 297-308.
- Hodgetts, D., & Stolte, O. (2012). Case-based research in community and social psychology: Introduction to the special issue. *Journal of Community & Applied Social Psychology*, 22(5), 379-389.
- Imbeau, L. M. (2003). Transparency in the budget process of a bureaucratic organisation: A principal-agent model of budgeting. *European Public Choice Society* (p. 6). Aarhus: Denmark.
- Jiang, Y., & Peng, M. W. (2010). Principal-principal conflicts during crisis. *Asia Pacific Journal of Management*, 1-13.
- Laffont, J. -J., & Martimort, D. (2002). *The theory of incentives: The principal-agent model*. Princeton, Oxford: Princeton University Press.
- Lane, J.-E. (2013). The principal-agent approach to politics: Policy implementation and public policy-making. *Open Journal of Political Science*, 3(2), 85-89.
- Margono. (2005). *Metode penelitian pendidikan*. Jakarta: Rineka Cipta.
- Mas-Colell, A., Whinston, M. D., & Green, J. R. (1995). *Microeconomic theory*. New York, Oxford: Oxford University Press.
- Neuman, W. L. (2014). *Social research methods: Qualitative & quantitative approaches*. Edinburgh: Pearson Education Limited.
- Patton, M. Q. (2002). Two decades of developments in qualitative inquiry: A personal, experiential perspective. *Qualitative Social Work*, 1(3), 261-283.
- Santoso, J., & Wibawa, S. (2015). Kebijakan pertambangan pasir Merapi di Kabupaten Magelang. Retrieved from [http://etd.repository.ugm.ac.id/home/detail\\_pencarian/28145](http://etd.repository.ugm.ac.id/home/detail_pencarian/28145).
- Su, Y. D., Xu, P. H., & Phan. (2008). Principal-principal conflict in the governance of the Chinese public corporation. *Management and Organization Review*, 4(1), 17-38.
- Sugiyono. (2008). *Metode penelitian kuantitatif kualitatif dan R&D*. Bandung: Alfabeta.
- Yin, R. K. (2011). *Studi kasus desain dan metode*. Jakarta: Raja Grafindo Persada.
- Zubayr, M., Darusman, D., Nugroho, B., & Nurrochmat, D. R. (2014). Principal-agent relationship in policy implementation of the use of forest area for mining activity, Indonesia. *Agriculture, Forestry and Fisheries*, 3(3), 181-188.